



Broadcasting Regulatory Policy CRTC 2019-308

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English-language closed captioning mandatory quality standards relating to the accuracy rate for live television programming

Canadians who use and rely on closed captioning to watch English-language television programming should have access to the highest possible quality of closed captioning for live programming.

Broadcasters are required to abide by established mandatory quality standards when providing closed captioned programming, certain of which relate to the closed captioning accuracy rate for live programming.

In Broadcasting Notice of Consultation 2019-9, the Commission called for comments on a proposal to update and finalize the English-language closed captioning mandatory quality standards relating to the accuracy rate for live television programming.

Based on its examination of this issue in light of the record for that proceeding, the Commission has approved a new accuracy rate and measurement model for live programming based on a proposal by a working group composed of representatives of associations for people who are deaf or hard of hearing, closed captioning providers, a captioning school, and broadcasters.

Specifically, the Commission has established a rate of 98 for English-language live programming, based on the NER model as described in the Canadian NER Evaluation Guidelines, which is consistent with the international standard. From 1 September 2019 to 29 February 2020, broadcasters will be expected to reach this accuracy rate. Beginning 1 March 2020, this expectation will become a requirement.

This new accuracy rate is intended to provide an improved closed captioning experience for the many Canadians that rely on these services and will help further the objective of ensuring that all Canadians are able to equitably access live English-language television programming.

For ease of reference, the full set of revised English-language closed captioning mandatory quality standards, as well as the Canadian NER Evaluation Guidelines, are appended to this regulatory policy.

The French-language closed captioning framework is distinct and remains unchanged.

Background

1. The Commission has, in accordance with sections 3(1)(p), 5(2)(d) and 9(2)(b) of the *Broadcasting Act* (the Act), taken a number of decisions intended to remove barriers and promote the accessibility of telecommunications and broadcasting services in Canada, and to ensure that Canadians with disabilities have equitable opportunities to use, enjoy and benefit from these services.
2. Closed captioning enables people who are deaf or hard of hearing to have full access to television, which continues to serve as a primary source of news, entertainment and sports programming. The Commission has consistently been of the view that poorly captioned programming is equivalent to un-captioned programming—when captioning cannot be comprehended, the programming it accompanies becomes inaccessible.
3. In Broadcasting Public Notice 2007-54, the Commission first directed the broadcasting industry to establish English- and French-language working groups for the development and implementation of measures to improve the quality of closed captioning in Canada. The first mandatory quality standards for English-language closed captioning were set out in Broadcasting Regulatory Policy 2012-362.¹ Among other things, the quality standards specified that a 95% verbatim accuracy rate² that must be reached for live (as opposed to pre-recorded) programming (Quality Standard 3) and required the monitoring of that accuracy rate (Quality Standard 4). In regard to Quality Standard 4, the Commission set out a requirement whereby every two years, broadcasters must provide the Commission documented evidence of efforts made to improve the accuracy of captioning.
4. In its first [report](#) to the Commission, dated 31 October 2014, the English Language Broadcasters Group (EBG), comprised of a number of private English-language broadcasters that were members of the Canadian Association of Broadcasters (CAB) and the Canadian Broadcasting Corporation (CBC) (collectively, the broadcasters), submitted that the verbatim accuracy rate of 95% for closed captioning of live programming (Quality Standard 3) was not achievable. The broadcasters reported that many types of live programming, due to the nature of such programming, had not scored well under that accuracy rate. They argued that achieving the accuracy rate was often not possible. The broadcasters added that, as a consequence of the above, all English-language broadcasters were in non-compliance with their conditions of licence relating to this accuracy rate.

¹ The current mandatory quality standards for French-language closed captioning, set out in Broadcasting Regulatory Policies 2011-741 and 2011-741-1, are distinct from the mandatory quality standards for English-language closed captioning and, as such, will remain unchanged following the issuance of this regulatory policy.

² Accuracy was measured by comparing the on-screen captions with a verbatim transcription of the audio portion of a program.

5. In Broadcasting Notice of Consultation 2015-325, the Commission called for comments on a targeted review of the closed captioning mandatory quality standard relating to the accuracy rate for live programming.³ Following the issuance of that call for comments, a group of broadcasters voluntarily formed a working group (the 2016 Working Group), which included representatives from associations for people who are deaf or hard of hearing, closed captioning providers and the Northern Alberta Institute of Technology (NAIT), to look into the issues raised in the notice. The 2016 Working Group submitted a proposal for a trial to develop and test an alternative method to measure the accuracy of captioning, with a view to improving quality. It also requested that the Commission temporarily suspend the requirement that broadcasters reach a given captioning accuracy rate for live programming during the trial.
6. The Commission suspended the requirement until 31 August 2019 in Broadcasting Regulatory Policy 2016-435, so as to allow the 2016 Working Group to conduct the proposed trial. In the appendix to that regulatory policy, the Commission also set out English-language closed captioning mandatory quality standards to replace those set out in the appendix to Broadcasting Regulatory Policy 2012-362. In that regulatory policy, the Commission also stated that during the suspension period, all programming would continue to be captioned, the methods used to provide captioning would not change, and all other quality standards would continue to be in effect.
7. The Commission received the 2016 Working Group's [final submission](#) on 6 November 2018, in which the following were proposed in regard to Quality Standards 3 and 4:
 - a) the current requirement to monitor two programs per month should continue, but of those programs, one should be in the “news” category and one should be chosen from genres that fairly represent the live program mix of the monitoring broadcaster;
 - b) the reporting of monitoring results should be done annually rather than every two years, and should include publication of the data from each program monitored;
 - c) the current 95% accuracy rate based on the verbatim test⁴ should be replaced with a standard of 98 under the NER model,⁵ as measured in the Canadian NER Evaluation Guidelines, by certified NER evaluators; and

³ The Commission subsequently approved three requests for extensions to the comment period to allow sufficient time for collaborative discussions among parties and for the assessment of an alternative method to measure the accuracy of closed captioning.

⁴ As noted in the 2016 Working Group's proposal, under the verbatim test, every word in captions that differs from a word in the audio is considered an error, without consideration of whether the captioned word is meaningful or simply nonsense.

⁵ The NER model is based on (1) the Number of words, (2) 'Edition' errors, where a difference arises from a choice made by the captioner to paraphrase the verbatim speech, and (3) 'Recognition' errors, where the captioner, or the software used by the captioner, delivers a caption word that is wrong, misspelled, or

d) the condition of licence relating to the accuracy rate for the closed captioning of live programming should be amended to require that the broadcaster and the captioning provider discuss any monitored program scoring below the accuracy standard, and provide a report describing the remedial action to be taken.

Call for comments

8. In Broadcasting Notice of Consultation 2019-9, the Commission called for comments on a proposal to amend and update the English-language closed captioning mandatory quality standards relating to the accuracy rate for live programming, set out in Broadcasting Regulatory Policy 2016-435, and to finalize the accuracy standard for live English-language closed captioning in Canada. Specifically, the Commission sought comments on the following:

- approving and adopting the Canadian NER Evaluation Guidelines that were included with the 2016 Working Group's final submission; and
- issuing amended English-language closed captioning mandatory quality standards for live programming, which would replace those set out in Broadcasting Regulatory Policy 2016-435 and would read as follows:

3) Accuracy rate for live programming

Beginning 1 September 2019, broadcasters must reach an accuracy level of 98 based on the "NER model," measured pursuant to the Canadian NER Evaluation Guidelines using certified NER evaluators.

4) Monitoring of accuracy rate

Beginning 1 September 2019:

- for each month, each broadcaster must calculate the accuracy rate for two programs containing live content including one program from the news category and another program chosen by the broadcaster from a genre that fairly represents the live program provided by the broadcaster.
- broadcasters must provide the Commission with an annual report describing their efforts to improve their accuracy rate. The report shall also include the data from each program monitored. The reports are to be filed by 30 November of each year.

garbled. This model was created by a team from the University of Roehampton in the United Kingdom and was designed to measure the accuracy of live captioning using the re-speaking method, which uses a middle person to repeat what is said on the program so that the voice recognition software can translate speech into text.

- each broadcaster shall provide the Commission with a report describing the remedial action to be undertaken in respect of any monitored program that scores below the new accuracy standard. The reports are to be filed by 30 November of each year.

Interventions and other submissions

9. In response to Broadcasting Notice of Consultation 2019-9, the Commission received interventions from the following parties:

- accessibility organizations: Media Access Canada (MAC), the Association of the Deaf – Association des Sourds du Canada (CAD-ASC) and the Canadian Hard of Hearing Association (CHHA);
- a captioning school: the NAIT;
- closed captioning providers: National Captioning Canada Inc. (NCC), Closed Caption Services Inc. (CCS), The Captioning Group Inc. (TCG), SOVO Technologies Inc. (SOVO) and Ai-Media Canada Inc. (Ai-Media), and Ms. Sasha Willson, a voicewriter with the TCG;
- a joint intervention from the CAB and the CBC (CAB/CBC) representing large private broadcasters and the public broadcaster;
- a joint intervention from the English-Language Local Independent Television Stations Group (E-ILTS), which consists of independent local television stations owned and operated by various licensees in various localities across Canada;⁶
- other broadcasters: Saskatchewan Telecommunications (SaskTel), Aboriginal Peoples Television Network Incorporated (APTN), Pelmorex Weather Networks (Television) Inc. (Pelmorex) and Cable Public Affairs Channel Inc. (CPAC);
- Keeble Media Inc. (KMI), the co-chair of the 2016 Working Group and an independent consultant to the broadcasting and media industry;
- Henge Design PTY Limited (Henge Design), an independent consultant to the broadcasting and media industry; and

⁶ Jim Pattison Broadcast Group Limited Partnership, operating in Kamloops and Prince George, British Columbia, and Medicine Hat, Alberta; Stingray Digital Group Inc. (now Stingray Group Inc.) in Lloydminster, Alberta; Thunder Bay Electronics Limited in Thunder Bay, Ontario; The Miracle Channel Association in Lethbridge, Alberta; Newfoundland Broadcasting Company Limited in St. John's, Newfoundland and Labrador; 0859291 B.C. Ltd. in Victoria, British Columbia; 2190015 Ontario Inc. (Channel Zero) in Hamilton, Ontario; and Crossroads Television System in Edmonton and Calgary, Alberta, and Hamilton, Ontario

- Ms. Wendy Randall and Mr. Marc Bonhomme (individuals).
10. In addition, the Canadian Broadcast Standards Council (CBSC) and Dr. Pablo Romero-Fresco, the developer of the NER model, although not parties to this proceeding as they did not file interventions, submitted replies to Commission requests for information.

Issues

11. After examining the record for this proceeding, the Commission finds that the issues it must address relate to the following:
- adopting the NER model and the Canadian NER Evaluation Guidelines for calculating the accuracy of English-language closed captioning of live television programming;
 - the certification of NER evaluators;
 - monitoring compliance with the revised English-language closed captioning mandatory quality standards relating to the accuracy rate for live television programming; and
 - the implementation of the revised English-language closed captioning mandatory quality standards relating to the accuracy rate for live television programming.

Adoption of the NER model and the Canadian NER Evaluation Guidelines for calculating closed captioning accuracy

12. The 2016 Working Group proposed that starting 1 September 2019, the verbatim test for the accuracy of English-language closed captioning of live television programming be replaced by the NER model. Specifically, English-language programs that are broadcast live would be required to attain a closed captioning accuracy score of at least 98, measured by the method described in the Canadian NER Evaluation Guidelines, based on the following equation:

$$\text{Accuracy Score} = (\text{Captioned Words} - \text{NER errors}) / \text{Captioned Words} \times 100$$

13. It further proposed that this requirement allow for exceptions that take into account instances, but not patterns, of equipment/technical malfunctions, human error, and other circumstances that are beyond broadcasters' control.
14. In support of its proposal, the 2016 Working Group noted the desirability of verbatim captioning, but also considered that the provision of such captioning is not always possible, for example, in cases of rapid speech and cross talk, and that captioners often paraphrase to communicate the meaning of the audio portion of live television programming rather than use the exact words broadcast. It further noted that

captioners' attempts to provide continuous verbatim captions cause long lag time and that they eventually drop long sections of text in order to catch up.

Positions of parties

15. Overall, parties to this proceeding expressed their support for the adoption of the NER model and the Canadian NER Evaluation Guidelines, as proposed by the 2016 Working Group, for calculating the accuracy of English-language closed captioning of live television programming. SOVO submitted, however, that the scoring system is not sufficiently punitive or discriminative, and recommended increasing the minimal accuracy rate from 98 to 99. For its part, Henge Design noted that the 2016 Working Group, in its proposal, modified the error definitions in the Canadian NER Evaluation Guidelines, and argued that the Commission should preserve the original error definitions to aid in remedial actions.

Commission's analysis and decisions

16. In the Commission's view, the verbatim test is and continues to be the ideal manner of ensuring the accuracy of the closed captioning of live television programming. However, in light of the 2016 Working Group's concerns regarding the use of the verbatim test, the Commission finds that it would be appropriate to replace the verbatim test for calculating the accuracy of English-language closed captioning of live television programming with the NER model using the Canadian NER Evaluation Guidelines.
17. The 2016 Working Group's recommendation that the requirement relating to the accuracy rate should allow for certain exceptions (such as those that take into account instances, but not patterns, of equipment/technical malfunctions, human error, or other circumstances that are beyond broadcasters' control), is consistent with the Commission's determination in this regard set out in Broadcasting Public Notice 2007-54. Accordingly, the Commission finds that exceptions from the requirement should be reflected in the revised English-language closed captioning mandatory quality standards relating to the accuracy rate for live television programming.
18. In regard to SOVO's recommendation, the accuracy threshold of 98, as noted by certain parties, is an internationally adopted standard for the use of the NER model. In the Commission's view, the intervener has not provided compelling reasons to deviate from this standard and from the 2016 Working Group's proposal in this regard.
19. In regard to Henge Design's comments regarding error definitions, the 2016 Working Group worked extensively with the evaluators in the trial and found that the newly categorized error definitions permitted a more efficient application of the NER model and more consistent scores. In the Commission's view, the 2016 Working Group was in the best position to determine whether any such modifications are necessary. In addition, there is no compelling evidence on the record of the proceeding to support Henge Design's request.

20. In light of the above, the Commission has amended Quality Standard 3 set out in Appendix 1 to this regulatory policy, to require an accuracy score of at least 98, as measured by the method described in the Canadian NER Evaluation Guidelines. Further, in line with the 2016 Working Group's recommendation, this requirement will continue to allow for exceptions such as those noted in paragraph 17 above, consistent with the Commission's determination in this regard set out in Broadcasting Public Notice 2007-54.

Certification of NER evaluators

21. In the following sections, the Commission has considered whether to require NER evaluators to be certified and, if so, the body that would oversee the certification process.

Requiring the certification of NER evaluators

22. The 2016 Working Group proposed that the accuracy standard for live English-language closed captioning in Canada be measured by certified NER evaluators.

Positions of parties

23. The CAB/CBC, E-ILTS, MAC, KMI, Ai-Media, Henge Design and Dr. Romero-Fresco supported a certification process for NER evaluators. Certain parties noted that the NER scoring methodology is very detailed and argued that a formal certification process would help to ensure consistency in the application of the NER model.
24. SOVO submitted that certification should be offered, but not mandatory. For its part, TCG opposed requiring any type of formal NER certification, especially if the certification comes from a single certification body. The NCC and CCS expressed the view that a transition to an NER-based model should incorporate open, unrestricted and easy access to NER training, qualification, and certification for companies or individuals wishing to pursue it. They added that training should be provided and available well in advance of implementation.
25. KMI indicated that it has received funding from the Broadcasting Accessibility Fund (BAF) for a project through which deaf, hard of hearing, and allied captioning consumers (i.e., children of deaf parents) would be trained and certified as NER evaluators, creating a mixed pool of independent Canadian NER evaluators. It stated that the intention behind training these new evaluators is to bring a new and valuable consumer perspective to the Canadian NER Evaluation Guidelines as they evolve. In KMI's view, one benefit of the project is that the mixed pool of trained and certified NER evaluators would be available to all parties who are interested in the accuracy of closed captioning. It added that although the project will conclude in February 2020, its intention is for the evaluators to be certified by the end of November 2019.

Commission's analysis and decisions

26. Very early in its trial, the 2016 Working Group discovered that the NER model involves the subjective judgments of an evaluator. At that time, the 2016 Working Group's NER evaluators had only undergone a three-hour training session, and the resulting scores were inconsistent. As a result, the 2016 Working Group elected to have trial evaluators trained in the NER model and certified by Dr. Romero-Fresco, the developer of the NER model. This resulted in greater consistency among the evaluations and led to the 2016 Working Group's proposal that NER evaluators be certified, which is consistent with experiences regarding the use of the NER model internationally.
27. For an assessment system to be a viable measurement tool, it must produce consistent results. In light of the detailed nature of the NER model and the scoring consistency that has been achieved both internationally and by certified evaluators in the 2016 Working Group's trial, the Commission finds it appropriate to require that the closed captioning accuracy rate for live television programming be measured by certified NER evaluators. Accordingly, as set out in Appendix 1 to this regulatory policy, the Commission has amended Quality Standard 3 to require that television licensees use certified NER evaluators when calculating the accuracy of English-language closed captioning of live television programming.

Oversight of the certification process

28. In light of its determination that NER evaluators must be certified, the Commission has considered the body that would oversee the certification process.

Positions of parties

29. The CAB/CBC, MAC, Ai-Media, KMI, Henge Design and Dr. Romero-Fresco submitted that a central body should oversee the certification process. KMI proposed the CBSC as the body to fulfill this role. In its proposal, KMI stated that the CBSC would not itself conduct training and certification, but would approve other parties, on application, to conduct certification. KMI added that the CBSC would also, among other things, maintain a list of certified Canadian NER evaluators for use by interested parties.
30. In response to Commission requests for information regarding the possibility that the CBSC be charged with the oversight of the certification of Canadian NER evaluators, the CBSC confirmed the feasibility of and its ability to perform this role. It added that it could establish, within approximately eight weeks of the Commission's decision in this regard, a new advisory panel comprised of captioning users and broadcasters. Specifically, the panel would include one nominated representative from the national public broadcaster, one nominated representative from one of the national private broadcasters, two individuals nominated by the Captioning Consumers Advocacy Alliance (CCAA) and one nominated representative from the CBSC (Chair of the

CBSC). The CBSC stated that the initial meeting of the advisory panel could take place within approximately fourteen weeks of a Commission decision.⁷

31. The CBSC further stated that it would advise parties that are interested in becoming NER certifiers that it is open to applications, which should include a detailed description of the proposed process for certification and of the costs. The CBSC would also advise appropriate educational institutions in Canada that it is beginning the process, and that any party wishing to engage in the training of NER evaluators (as distinct from certification) should communicate with it.
32. The CAB/CBC, CCAA, Pelmorex, SaskTel, CCS, Ai-Media, and KMI supported the CBSC's proposal and submitted that the CBSC can play a constructive role in the certification process. Dr. Romero-Fresco indicated that if the Commission gives the responsibility to the CBSC, Live Respeaking Certification Standard (LiRICS)⁸ would apply to seek that designation.
33. Although none of the parties opposed the creation of a CBSC advisory panel, the CCAA expressed concerns regarding the travel costs for the two CCAA representatives that would be on the panel. It noted that its participants had found it extremely difficult to participate in meetings of the 2016 Working Group when they were not financially able to attend those meetings. The CCAA also expressed the view that, at a minimum, travel costs should form part of the advisory panel budget.

Commission's analysis and decision

34. The Commission agrees with KMI that the CBSC has, for many years, effectively administered various broadcast standards and, as a long time player in the broadcasting system that is nonetheless distinct from broadcasters, is well positioned to oversee the certification of NER evaluators. The Commission also acknowledges the overwhelming support expressed by various parties for assigning this role to the CBSC.
35. Further, the Commission considers that an advisory panel that includes caption users and broadcasters, as well as individuals who have previous experience with the NER model and a representative from the CBSC, would be an effective way of ensuring that all affected parties are involved with the certification process.
36. As noted above, the CBSC would accept as certified all individuals holding certificates signed by Dr. Romero-Fresco and KMI during the NER trial. In addition, the funding received by KMI from the BAF to train and certify deaf, hard of hearing, and allied captioning consumers as NER evaluators would ensure that a pool of certified NER evaluators is available once the requirement comes into effect. In the

⁷ Once the advisory panel nominees have been identified, additional time will be required to find a mutually agreeable date and meeting place. American Sign Language interpreters and Communication Access Realtime Translation (CART) captioners must be booked for the meeting and they require six weeks advance notice.

⁸ LiRICS is an official certification body run by the Galician Observatory for Media Accessibility (GALMA), a research group based at Universidade de Vigo in Spain and led by Dr. Romero-Fresco.

Commission's view, this would constitute a huge step forward for deaf and hard of hearing Canadians, whose slogan has been "Nothing about us without us," given that they will be involved in evaluating the quality of live English-language closed captioning.

37. Further, the Commission finds that access to training and certification should be open and unrestricted as this would increase the number of people qualified to participate in the scoring process, thereby making the process more transparent and accessible.
38. Given that all broadcasters are not members of the CBSC, revised English-language closed captioning mandatory quality standards would have to clearly state that the CBSC would need a publicly available, accessible web portal listing the certified Canadian NER evaluators, the Canadian NER Evaluation Guidelines, as well as information identifying where NER training can be obtained.
39. Finally, in regard to the concerns expressed by the CCAA regarding travel costs for its members to participate on the advisory panel, this is an operational issue that should be discussed and agreed upon by the advisory panel.
40. In light of the above, the Commission determines that the CBSC will be the body that will oversee the certification process for NER evaluators. In this role, the CBSC will convene a new advisory panel to guide it in this area and create a publically available, accessible web portal listing, at a minimum, the names of certified Canadian NER evaluators, the Canadian NER Evaluation Guidelines, as well as information identifying where NER training can be obtained. The information at this portal should also be made available in American Sign Language (ASL) and Langue des signes québécoise (LSQ).

Monitoring compliance

41. In the sections that follow, the Commission addresses the monitoring of compliance with the closed captioning accuracy rate through reporting requirements and through complaints.

Reporting requirements

42. The 2016 Working Group proposed that broadcasters be required to report to the Commission annually (i.e., for each broadcast year), rather than biennially as currently required, on their efforts made in-house and on their requests to caption providers to improve the closed captioning accuracy rate. Each annual report would include the data from each program monitored and would be filed by no later than 30 November of each year, the same date on which broadcasters must submit annual returns.
43. In addition, the 2016 Working Group recommended maintaining the requirement for each broadcaster to calculate, every month, the accuracy rate for two programs containing live content, as set out in Broadcasting Regulatory Policy 2016-435. It added that one of the programs should be in the "news" category, and the other

chosen from among the genres that fairly represent the live program mix of the monitoring broadcaster.

44. Finally, the 2016 Working Group proposed an amendment to Quality Standard 4 such that broadcasters and captioning providers would be required to discuss any monitored program scoring below the accuracy standard, and provide a report describing the remedial action to be taken in such a situation.

Positions of parties

45. Overall, parties supported the 2016 Working Group's recommendations, although certain parties commented on aspects of the recommendations or proposed variations.
46. Henge Design proposed that the monitoring requirement be quarterly rather than monthly given that certain genres, such as live entertainment, may not be available each month, but only each quarter. SaskTel submitted that requiring reports on the remedial action to be taken where a monitored program scores below the new accuracy standard to be redundant and unnecessary, given that the 2016 Working Group proposed annual rather than biennial reporting.
47. TCG submitted that the choice of the two programs to be monitored should be done in a random fashion, rather than broadcasters selecting the programs to be evaluated. In its view, this would prevent broadcasters from choosing the "best" programming for the monitoring exercise, which could unfairly reflect the overall quality of the closed captioning provided by the broadcaster.
48. SaskTel, noting that it does not offer news programming, proposed that the accuracy standard include the phrase "if the broadcaster offers news programming." MAC supported SaskTel's request and added that where a broadcaster does not air news programming, the second segment should be drawn from a second genre approved by the Commission.
49. The CAB/CBC, MAC, CHHA, the NAIT and Henge Design submitted that a digital video file for any program that is reviewed should be incorporated into a broadcaster's reporting process, to allow for proper oversight in regard to NER evaluation.

Commission's analysis and decisions

50. In the Commission's view, a reporting framework would provide transparency in regard to broadcasters' closed captioning performance and would be helpful to the Commission and to viewers by keeping all parties aware of the progress during implementation.
51. The reporting provision proposed by the 2016 Working Group is stricter than the current standard given that it requires broadcasters to report annually, rather than biennially. Given that the NER framework will be newly introduced in Canada, the Commission considers that increased reporting would be an effective way of keeping

abreast of the implementation of that framework. Accordingly, the Commission finds it appropriate to adopt the annual reporting requirement proposed by the 2016 Working Group.

52. In regard to Henge Design's recommendation to require broadcasters to perform quarterly instead of monthly monitoring, the Commission notes that broadcasters were generally of the view that the 2016 Working Group's proposal for monthly monitoring would not be unduly difficult or problematic.⁹ Further, monthly monitoring is consistent with the requirement that was developed under the verbatim approach to live captioning. Accordingly, the Commission finds it appropriate to maintain the monthly monitoring requirement.
53. In regard to the choice of two programs for monthly monitoring, the Commission acknowledges the concerns underlying the TCG's proposal for the random selection of programs to be monitored. However, the current approach requiring the monitoring of one program in the "news" category and one program in a program genre that fairly represents the live program mix of the broadcaster has worked without any problems being reported, and is consistent with the requirement under the verbatim approach to live captioning. Accordingly, the Commission finds that it would be appropriate not to make any changes in this regard. In cases where a broadcaster does not air news programming, the Commission considers that it would be appropriate to permit the broadcaster to monitor a second program of its choosing.
54. In addition, the Commission considers that a digital video file for any program that is reviewed should be included with the broadcaster's annual report, as this would provide the Commission with an effective way of keeping abreast of the NER model's implementation.
55. Finally, the Commission finds that requiring broadcasters and captioning providers to report on the remedial action to be taken in the event that a monitored program scores below the new accuracy standard is unnecessary. Moving from a biennial to annual reporting requirement would ensure that broadcasters are appropriately held accountable.
56. In light of the above, the Commission has amended Quality Standard 4 such that each broadcaster must calculate the closed captioning accuracy rate for two English-language programs containing live content on a monthly basis. If the broadcaster airs news programming, at least one of the programs must be in the "news" category, whereas the second program must be one from a genre that fairly represents the live program mix of the broadcaster. In cases where a broadcaster does not air news programming, that broadcaster must monitor a second live program from a genre of its choosing that fairly represents the live program mix of that broadcaster.
57. Further, the Commission has amended Quality Standard 4 such that by 30 November every year, broadcasters must provide the Commission with a report describing their

⁹ The sole exception was E-ILTS, whose recommendation for less frequent monitoring is addressed below.

efforts made in-house and requests to caption providers to improve the accuracy rate during the broadcast year. The reports must also include the data from each of the two programs that are monitored each month, including the corresponding digital video file for each of those programs.

58. The amended Quality Standard 4 is set out in Appendix 1 to this regulatory policy.

59. The Commission will request that broadcasters submit their monthly accuracy rate calculations when it deems it appropriate, such as in the event the Commission becomes aware of compliance issues. In cases of repeated non-compliance, the Commission may explore imposing additional regulatory requirements, including further monitoring requirements.

Complaints

Positions of parties

60. E-ILTS submitted that, consistent with its 2012 captioning standards policy, the Commission should make it clear that it will “address any alleged non-compliance by individual broadcasters on a complaints basis, as it does in the case of programming-related complaints.” For its part, CHHA proposed the establishment of a central location/hub where consumers can submit complaints that will be resolved by people with technical knowledge and expertise, where there are timelines in place and where consumers feel respected and listened to.

61. In regard to the CHHA’s proposal, the CAB/CBC submitted that complaints about programming are presently directed to the broadcaster that provides the programming, and should continue to be treated in the same manner. In its view, should there be problems regarding captioning, the Commission’s current complaints process is an effective way to address them.

62. In response to Commission requests for information, the CBSC stated that its role as a facilitator of the certification process for NER evaluators would be a focused activity spearheaded by the CBSC Chair and would not affect the organization’s ability to fulfill its duties relating to the review and possible adjudication of complaints about the programming of private broadcasters in Canada. The CBSC added that it could not take on the role of adjudicating as it has neither the staff, budget, nor required expertise to take on additional complaints that do not relate to the CAB’s broadcast codes.

63. In the event the Commission finds that overseeing the certification process for NER evaluators and adjudicating complaints cannot be done separately, the CBSC stated that it would decline any role whatsoever in the NER certification process. This position was supported by the CAB/CBC, CCAA and KMI, who strongly opposed that the CBSC advisory panel play any role in the adjudication of complaints relating to closed captioning, and who considered that the task of adjudicating complaints relating to closed captioning should continue to reside with the Commission.

Commission's analysis and decisions

64. As set out in section 18(3) of the Act, the Commission “may hold a public hearing, make a report, issue any decision and give any approval in connection with any complaint or representation made to the Commission or in connection with any other matter within its jurisdiction under this Act if it is satisfied that it would be in the public interest to do so.”
65. The Commission’s Rules of Practice and Procedure sets out the framework for the processing of complaints by the Commission. Currently, if a party is unable to directly resolve a closed captioning complaint with a broadcaster, that party can file a complaint with the Commission. As such, the Commission finds that the necessary tools for addressing complaints are already in place and that no further action is needed.
66. The Commission will continue to address any alleged non-compliance by individual broadcasters brought to its attention through the filing of complaints and may explore imposing additional regulatory requirements, including further monitoring requirements, in cases of repeated non-compliance.

Implementation of the revised closed captioning quality standards

67. In the sections below, the Commission addresses the effective date of implementation of the NER model, a request for flexibility for independent broadcasters in regard to that implementation, and monitoring the transition into the use of the NER model following implementation.

Effective date of implementation

68. The 2016 Working Group proposed 1 September 2019 as the effective date of implementation for the NER model for calculating the accuracy of English-language closed captioning of live television programming.

Positions of parties

69. Pelmorex indicated that it would be able to meet the implementation date of 1 September 2019. However, it supported, as did NCC, a phased-in approach to allow for the training and certification of evaluators. CCS submitted that NER training should be provided and made available well in advance of implementation.
70. In response to a Commission request for information, the CBSC indicated that the creation of an accessible web portal listing the certified Canadian NER evaluators approved by the CBSC, the Canadian NER Evaluation Guidelines, as well as information identifying where NER training can be obtained would be rolled-out in two phases.
71. In the first phase, an English-language, text-based listing of certified Canadian NER evaluators and institutions prepared to engage in NER training, as received by the

CBSC from interested parties, along with the Canadian NER Evaluation Guidelines, would be posted on the CBSC's website shortly after the initial meeting of the advisory panel. As noted above, according to the CBSC, this could take place within approximately fourteen weeks of a Commission decision on the body to oversee the certification of NER evaluators.

72. In the second phase, a video portion would be added. A script and video component would be approved by the advisory panel, and the panel would also have to approve the ASL interpreter to be used for the video. The CBSC noted that adding ASL and captions to the video would take several weeks, but did not provide a specific timeline given the number of variables to take into consideration. It also indicated that it would arrange to host the video(s) on an external public site (e.g., Vimeo).

Commission's analysis and decision

73. As noted above, only large private broadcasters and the CBC were involved in the two-year trial period of the NER model. In addition, the trial period did not test the actual implementation of the NER model, and did not test the role of the CBSC in overseeing certification of NER evaluators, which was only raised during the course of the proceeding. Finally, as noted above, small independent broadcasters were not involved in the trial period, and therefore are not necessarily familiar with the NER model.
74. The Commission acknowledges that switching from a verbatim approach to calculating the accuracy of closed captioning using the NER model, as well as requiring the certification of evaluators, is a significant change for broadcasters and captioners. Moreover, the Commission recognizes that other implementation issues may only come to light in the process of implementing the NER model.
75. In particular, given the importance of centralized oversight of NER certification and the need to create a sufficient pool of NER evaluators, it is the Commission's view that the 14-week implementation timeframe set out by the CBSC appears reasonable, especially considering any accommodations that will need to be provided to the CCAA representatives on the advisory panel.
76. The Commission finds it appropriate to set out an expectation that television broadcasters, during the period beginning 1 September 2019 and ending 29 February 2020, will reach an accuracy rate of at least 98 for English-language closed captioning of live television programming, as measured by the method described in the Canadian NER Evaluation Guidelines set out in Appendix 2 to this regulatory policy, and as calculated by NER evaluators who have been certified by a certification body approved by the CBSC. Beginning 1 March 2020, this expectation will become a requirement. In the Commission's view, this phased-in approach will provide all broadcasters with the time they need to bring themselves into compliance with the closed captioning requirements. The amended Quality Standard 3 is set out in Appendix 1 to this regulatory policy.

77. In regard to the monitoring requirement, the Commission finds that a phased-in approach would not be appropriate and that monitoring should be imposed as a requirement from the outset. Obligating broadcasters to monitor the accuracy of their programming will ensure that they remain aware of their progress during implementation and will allow them to correct problems as they arise. Accordingly, as set out in Quality Standard 4 in Appendix 1, the new monitoring requirement will take effect 1 September 2019, and the first annual reports, covering the entire 2019-2020 broadcast year, must be submitted by 30 November 2020.

Requested flexibility for independent broadcasters

Positions of parties

78. As noted above, E-ILTS consists of independent local television stations owned and operated by various licensees in localities across Canada. Those stations rely on a variety of third party solutions for captioning, including those offered by live captioning companies as well as various automated software-based approaches. Although E-ILTS generally supported the use of the NER model for calculating the accuracy of English-language closed captioning for live television programming, it stated that it would find assessing the impact of adopting the NER model on independent television stations difficult given its lack of familiarity with the model.
79. Further, E-ILTS acknowledged that voice recognition software, which is sometimes used by independent television stations and allows for costs savings, is improving year by year, but noted that based on preliminary testing, voice recognition-based captioning could have difficulty meeting the proposed NER 98 accuracy standard in the short term.
80. E-ILTS recommended that the Commission implement the NER model in a modified and more flexible manner for independent television stations. It requested that the implementation of the model be delayed until 1 September 2020 for independent local television stations, and that implementation before that date be set out for those stations as an expectation rather than as a requirement.
81. E-ILTS also recommended that the number of required monitoring exercises be reduced from two per month to two per quarter, with an allowance for a further reduction if the standard is met two quarters in a row. Finally, it recommended a lower required NER accuracy standard of 97 be applied to independent television stations for the first four years after the implementation of the NER model.
82. APTN supported E-ILTS's recommendations, noting that, to a certain extent, they reflect APTN's circumstances. MAC proposed that the broadcasters that form E-ILTS be required to file the initial report, that they only be required to report on local news, and that should they be in compliance with the requirements, they "be forgiven every second report." The CAB/CBC also supported E-ILTS's recommendations for flexibility given that smaller broadcasters face unique challenges.

83. For its part, the 2016 Working Group did not propose flexibility for any particular group.

Commission's analysis and decision

84. The Commission acknowledges that independent television stations were not involved in the two-year trial period for the NER model and, as such, are not necessarily familiar with that model for calculating the accuracy of English-language closed captioning for live television programming. However, in regard to E-ILTS's statement that voice recognition-based captioning could have difficulty meeting the proposed 98 NER accuracy standard, the Commission notes that the NER model was originally developed for calculating the accuracy of the closed captioning of live programming using the re-speaking technique, which is based on voice recognition.

85. Further, the amendment to Quality Standard 4 does not require that the methods used to provide closed captioning be changed, but only changes the way in which the accuracy of live English-language closed captioning is evaluated.

86. In the Commission's view, E-ILTS has not provided a compelling rationale to demonstrate that the flexibility requested is warranted. It is also concerned that granting the flexibility would compromise the quality of closed captioning for viewers of the programming provided by those broadcasters. Finally, as noted above, the phased-in approach from expectation to requirement for implementing the NER model will provide all broadcasters, including independent broadcasters, with the time they need to bring themselves into compliance with the closed captioning requirements. Consequently, the Commission does not consider it appropriate to approve E-ILTS's requests for flexibility for independent television broadcasters.

Monitoring progress following implementation

87. The 2016 Working Group set out its intention to continue meeting on an annual basis following the filing of the monitoring reports to address any issues relating to using the NER model, including any future changes to the Canadian NER Evaluation Guidelines.

Positions of parties

88. Ai-Media recommended that the Commission convene a series of community consultations during the transition to the NER model in 2019 and 2020, during which broadcasters, citizen and consumer groups, service providers and interested citizens would be able to meet to discuss progress towards the new standard, and discuss the consumer experience. In response to Ai-Media's recommendation, the CAB/CBC submitted that the 2016 Working Group should be tasked with reporting to the Commission on the implementation of the NER model after the first year following implementation.

Commission's analysis and decision

89. The Commission finds that the 2016 Working Group has been effective in addressing the issues specified in Broadcasting Notice of Consultation 2019-9 and in developing its proposal for a trial with a view to improving the quality of closed captioning. Further, the Commission finds that this working group has the expertise needed to effectively continue its work relating to ensuring the accuracy of closed captioning. To help in the working group's continued efforts, the Commission expects Bell Media Inc., Corus Entertainment Inc., Rogers Media Inc. and the CBC to continue participating in that working group, at least to the same extent and in the same manner as they have been throughout the present proceeding. The Commission also expects those parties to ensure that the working group meets annually following the submission of the closed captioning monitoring reports and to continue supporting that working group in a manner and to a level similar to what they currently do. The Commission also requests the working group to provide to the Commission, by no later than 1 March 2021, a report on the implementation of the NER model over the first year.
90. The Commission encourages the CCAA, captioning providers, and the NAIT to continue to actively participate in the 2016 Working Group. Also, given their possible unfamiliarity with the NER model, the Commission encourages the participation of small independent broadcasters in that working group.

Conclusion

91. In light of all of the above, the Commission amends the English-language closed captioning mandatory quality standards relating to the accuracy rate for live programming and to the monitoring of that accuracy rate currently set out in Broadcasting Regulatory Policy 2016-435.
92. For ease of reference, the full set of revised English-language closed captioning mandatory quality standards are set out in Appendix 1 to this regulatory policy. In addition, in Appendix 2 to this regulatory policy, the Commission has set out the Canadian NER Evaluation Guidelines.

Secretary General

Related documents

- *Call for comments regarding the English-language closed captioning quality standards relating to the accuracy rate for live programming*, Broadcasting Notice of Consultation CRTC 2019-9, 16 January 2019
- *English-language closed captioning quality standard related to the accuracy rate for live programming*, Broadcasting Regulatory Policy CRTC 2016-435, 2 November 2016
- *Call for comments on the English-language closed captioning quality standard relating to the accuracy rate for live programming*, Broadcasting Notice of Consultation CRTC 2015-325, 22 July 2015
- *Quality standards for English-language closed captioning*, Broadcasting Regulatory Policy CRTC 2012-362, 5 July 2012
- *Quality standards for French-language closed captioning – Enforcement, monitoring and the future mandate of the French-language Closed Captioning Working Group*, Broadcasting Regulatory Policy CRTC 2011-741-1, 21 February 2012
- *Quality standards for French-language closed captioning*, Broadcasting Regulatory Policy CRTC 2011-741, 1 December 2011
- *A new policy with respect to closed captioning*, Broadcasting Public Notice CRTC 2007-54, 17 May 2007

Appendix 1 to Broadcasting Regulatory Policy CRTC 2019-308

English-language closed captioning mandatory quality standards

The mandatory standards below replace those set out in the appendix to *English-language closed captioning quality standard relating to the accuracy rate for live programming*, Broadcasting Regulatory Policy CRTC 2016-435, 2 November 2016.

1) Lag time

For live programming, the lag time between the audio and the captions must not exceed six seconds, averaged over the program.

2) Accuracy rate for pre-recorded programming

Captioning for pre-recorded programs must target an accuracy rate of 100%, including spelling.

3) Accuracy rate for live programming

From 1 September 2019 to 29 February 2020, the Commission expects broadcasters to reach an accuracy rate of at least 98 for English-language closed captioning of live television programming, as measured by the method described in the Canadian NER Evaluation Guidelines set out in Appendix 2 to *English-language closed captioning mandatory quality standards relating to the accuracy rate for live programming*, Broadcasting Regulatory Policy CRTC 2019-308, 30 August 2019, and as calculated by NER evaluators who have been certified by a certification body approved by an oversight organization identified by the Commission.

Beginning 1 March 2020, broadcasters must reach an accuracy rate of at least 98 for English-language closed captioning of live television programming, as measured by the method described in the Canadian NER Evaluation Guidelines set out in Appendix 2 to *English-language closed captioning mandatory quality standards relating to the accuracy rate for live programming*, Broadcasting Regulatory Policy CRTC 2019-308, 30 August 2019, and as calculated by NER evaluators who have been certified by a certification body approved by an oversight organization identified by the Commission.

4) Monitoring of accuracy rate

Beginning 1 September 2019, each month, each broadcaster must calculate the closed captioning accuracy rate for two English-language programs containing live content. If the broadcaster airs news programming, at least one of the programs must be in the “news” category, whereas the second program must be one from a genre that fairly represents the live program mix of the broadcaster. In cases where a broadcaster does not air news programming, that broadcaster must monitor a second live program from a genre of its choosing that fairly represents the live program mix of that broadcaster.

By 30 November of each year, broadcasters must provide the Commission with a report describing their efforts made in-house and requests to caption providers to improve the English-language closed captioning accuracy rate for live television programming during the broadcast year. The reports must also include publication of the data from each program monitored, including the corresponding digital video files.

5) Rebroadcast of programs initially aired live

When a broadcaster rebroadcasts a program that was initially aired live, it must correct errors in the captioning if:

- the content is rebroadcast as is, i.e., subsequent broadcasts are recordings of the original broadcast;
- in the case of Category 1 (News) or Category 3 (Reporting and Actualities) programs, the time between the end of the original broadcast and the rebroadcast is equal to at least two times the total duration of the program; and
- in the case of all other live programs, the program is rebroadcast more than 24 hours after the end of the original broadcast.

6) On-screen information

Positioning: For both live and pre-recorded captioning, captions must be positioned to avoid covering action, visual elements or any information required to understand the message.

Conflict between captions and on-screen information: If, despite the broadcaster's efforts, it is impossible to present captions without obstructing other graphic elements on screen (e.g., sports scores, weather data, breaking news), captions take precedence.

7) Speed

Captions must be verbatim representations of the audio, regardless of the age of the target audience.

Speech must only be edited as a last resort, when technical limitations or time and space restrictions will not accommodate all of the spoken words at an appropriate presentation rate.

For the purpose of this standard, "appropriate presentation rate" is defined as 120-130 words per minute for children's programming.

8) Captioning format for Canadian pre-recorded programming

Pop-on captions are to be used for all new Canadian pre-recorded programming. Pre-recorded programs are those that have been delivered in their entirety—lacking only the closed captioning information—96 hours before they are to be broadcast.

9) Closed captioning of emergency alerts

With the exception of emergency alerts issued by the National Alert Aggregation and Dissemination System, in the event of a community emergency, broadcasters are required to provide all relevant information in both vocal and written formats and must insert the captions in their programming as soon as possible, using the method described in the [CAB Closed Captioning Manual](#).

Appendix 2 to Broadcasting Regulatory Policy CRTC 2019-308

Canadian NER Evaluation Guidelines¹⁰

Purpose and use of these guidelines

These guidelines establish a standard set of practices for NER evaluators in Canada to enable consistent scoring. Details differ from NER as used in the UK, to adapt to Canadian broadcasting and captioning practices, but the developer of NER, Dr. Pablo Romero-Fresco, has reviewed them and attests that scores will be comparable.

NER scoring interpretation guide – NER “errors”

NER measures the accuracy of captions by comparing the caption viewer’s experience with that of the hearing viewer. NER evaluation begins with the preparation of a verbatim transcript and a caption transcript for ten minutes of live-captioned content in a television program. Details of this preparation are described below. The NER evaluator then scores captions by comparing the two transcripts and assigning an “error” type – with its score deduction – to any differences. One or several errors may apply, chosen from six possible error types, when:

- there is a loss or change of meaning, or;
- there are words/phrases that do not alter meaning, but cause the caption reader to interrupt the reading experience to attempt to understand them.

The six error types and their deductions are:

- **Correct Edition (CE)** (-0.0). CE is scored when captions are different from the verbatim audio but retain its full meaning, without interrupting words/phrases.
- **Omission of Main Meaning (OMM)** (-0.5) The captions have lost the main idea presented in the audio’s independent idea unit (see page 2).
- **Omission of Detail (OD)** (-0.25). Here, the captions have lost one or more modifying meaning, affecting a dependent idea unit (see page 2) but not the main idea.
- **Benign Error (BE)** (-0.25) A captioned word or phrase is incorrect, causing an interruption in the reading. However, the viewer can readily figure out the original meaning, from context (in video) or similarity to the real word.

¹⁰ The Canadian NER Evaluation Guidelines, as provided by the 2016 Working Group in its final submission, were originally placed on the [public record](#) for the proceeding initiated by Broadcasting Notice of Consultation 2019-9. That version of the guidelines, which is only available in English, is to be considered the official version. They have been reproduced in this appendix for ease of reference.

- **Nonsense Error (NE)** (-0.5) A captioned word or phrase is incorrect and the viewer can't figure out the original meaning. If the impact of the word/phrase is to alter or omit the meaning of the idea unit, OD, OMM or FIE will be scored instead.
- **False Information Error (FIE)** (-1.0) The captions make sense, but the information they present is different from the verbatim. The caption viewer cannot tell that the meaning is false.

Idea units and errors

NER divides the transcripts into “idea units”¹¹ since it deals primarily with comparisons of meaning, and the grammatical divisions of sentences and clauses often do not correspond exactly to meaning. In oral communication a single idea may be spread over several sentences. Also, one sentence may contain an idea that functions as a modifier of another sentence.

Idea units in NER are of two types – independent and dependent.

An **independent** idea unit, such as “The blaze started this morning at the front of the house.”, is the oral equivalent of a sentence, makes sense as a full, independent message and may be composed of several dependent idea units, such as “this morning” and “at the front of the house.”

“Omission of Main Meaning” is an error that often consists in the omission of a full independent idea unit (which may not be noticed by the viewer) or of a dependent idea unit that renders the independent unit meaningless or nonsensical.

A **dependent** idea unit is often a complement or modifier and it provides information about the “when,” the “where,” the “how,” etc. of an independent idea unit.

“Omission of Detail” is less destructive of meaning than OMM because its impact is limited to dependent idea units – words or phrases that modify or add detail to the main idea. They do not render the independent unit meaningless or nonsensical.

“Nonsense Errors” and “Benign Errors” do not apply to idea units because they are about interruptions, not meaning. These errors are scored when a word or phrase is misspelled, garbled, or in some way interrupts the reading experience while the viewer considers it.

- A “Benign Error” is scored when viewers can understand and sometimes reconstruct the original words. Typical cases are missing apostrophes, missing punctuation (such as “?”), misspellings that are close to the original, etc.

¹¹ The definition of “idea unit” is drawn from the base document in NER: *Accuracy Rate in Live Subtitling – the NER Model* by Pablo Romero-Fresco and Juan Martínez, 2014.

- A “Nonsense Error” applies when the word or phrase cannot be understood, causing greater reading disruption.

Note that NER scoring does not consider what it is reasonable to expect of a captioner. If sounds are part of the hearing viewer’s experience (i.e., are intelligible), and their meaning is not in the captions, an error will be scored. The difficulty of captioning a show – due to rapid speech or other factors – should be noted in the evaluator’s comments but does not affect the scoring.

The decision tree

Deciding which error applies can be clarified by using a “decision tree” approach, in which the evaluator looks at an idea unit with caption-verbatim discrepancies and asks a sequence of questions that lead eventually to the right “error.” The evaluator then moves on to the next idea unit with a discrepancy and applies the same process.¹²

- Question 1. Does the caption convey the full meaning of the idea unit, without words/phrases that interrupt the reading experience?
- If “yes” to Question 1, score CE, move to next idea unit.
- If “no” to Question 1, Question 2. Does the caption for this idea unit present false and understandable information?
- If “yes” to Question 2, score FIE, move to next idea unit.
- If “no” to Question 2, Question 3.a. Does the caption viewer lose meaning that was available to the hearing viewer?
- If “yes” to Question 3.a., and if the lost meaning is the main idea, score OMM.
- If “yes” to Question 3.a., and if the lost meaning is a modifying detail, score OD.
- If “no” to Question 3.a., no score, next question.
- If “no” to Question 2, Question 3.b. Does any word/phrase in the idea unit interrupt the reading experience (because of misspellings, missing punctuation, etc.)?
- If “no” to Question 3.b., no score.
- If “yes” to Question 3.b., Question 4. For each such word/phrase, has it already caused a scored OD or OMM?
- If “yes” to Question 4, no additional score.
- If “no” to Question 4, Question 5. Can the interrupting word/phrase be understood with a moment’s thought?
- If “yes” to Question 5, score BE.
- If “no” to Question 5, score NE.

¹² To comply with the web accessibility guidelines for Commission documents, the formatting and presentation of the two decision tree figures found in the official version of the Canadian NER Evaluation Guidelines have been modified for inclusion in this appendix, without making changes to the substance of the instructions provided in those figures.

Combining errors

Since NER considers both distortions of meaning and interruptions to the reading experience, it is possible to score both types of error within a single idea unit.

For example, if the meaning of a whole idea unit is lost, 1xOMM is scored, but a BE or NE interruption error may also be scored within the same idea unit. After considering OD or OMM in the “First” section of the decision tree, the evaluator then moves to the “Second” section to consider BE and NE. However, if the possible BE or NE caused the loss of meaning, OMM/OD alone is the accurate measure of the error, and the interruption error is not scored. In such cases, scoring the interruption is considered a “double-count” of the same error, so it is not used.

However, both an OD/OMM and an NE may be scored in the same idea unit when an unrelated garbled word is added to captions that have a separately-caused issue of meaning.

Also, one may score multiple BEs and/or NEs if there are several interrupting words/phrases in the idea unit.

NE on its own is a relatively rare score, since an incomprehensible word/phrase will typically affect the meaning of the idea unit, and OD/OMM will be scored instead. However, it is possible for an idea unit to be fully communicated while still containing a superfluous garbled word that causes a long interruption in reading, in which case NE alone is the correct score.

OD and OMM do not combine. If an independent idea unit contains one or more dependent idea units, and the meaning of the main idea is lost, we do not score additional ODs for loss of details, but 1xOMM.

Adding up .25 errors to equal more than a .5 error

Multiple ODs may be scored, even when their total errors count more than the error scored for an OMM. Following UK practice, 3xOD or 4xOD is a possible score within a single independent idea unit.

Lists and idea units

Each element in a list is usually seen as a separate dependent idea unit. Their omission would be 1xOD or more depending on how many units’ meaning was not transmitted. The fact that they are “like” elements does not justify a 1xOD score if more than one is left out.

Note that the loss of what appears to be a detail can affect the meaning of the whole independent idea unit. For example, leaving a crucial ingredient out of a recipe could ruin it, and therefore its impact could be 1xOMM, or even FIE.

Idea units in play-by-play

In sports play-by-play, a sequence of actions by a single player, or a single play sequence, should be treated as one independent idea unit. Elements within it, if omitted, are dependent idea units and their omission is scored OD or multiple ODs if more than one is omitted. If the whole sequence is omitted or made meaningless, the score is 1xOMM.

FIEs

FIE is scored when the captions replace the meaning of the verbatim with another clear but false meaning. The resulting caption must make sense and be clear to be FIE. It does not communicate false information if the caption viewer doesn't readily understand it, or if it suggests a wrong meaning but does not communicate it clearly. If the result of the caption is confusing, it will not be an FIE but may be another kind of error.

The assessment of errors in NER is never dependent on the importance of the topic.

Since we cannot know the viewer's priorities, all subjects are equal. By this token, changes in meaning, even if not "important," are still FIEs.

NER does not consider whether the viewer might know the statement is false from out-of-program background knowledge. If the captions make sense, and provide wrong information according to the verbatim audio, then there is an FIE.

However, in-program context matters: if the misinformation is corrected with an on-screen graphic, or is corrected in following captions, then it is not an FIE, but may be another kind of error. Sometimes correct meaning or correct words can be supplied from visuals on the screen – player numbers, a score bug, a visual of the scene being described, surrounding text. The video may provide information that can be edited from the captions without loss, e.g., temperatures in a weather report, if they are on-screen.

Grammar and punctuation errors

Punctuation

Punctuation should be added to be verbatim transcript as described below. Punctuation discrepancies should be scored.

Missing question marks are usually scored BE: the viewer can tell from the word order that a question has been asked but has to stop for a moment because the "?" is omitted. This causes an interruption and therefore BE should be scored. A period that replaces a comma, breaking up a sentence, can cause a similar pause and be BE.

However, in cases like play-by-play audio, where complete sentences are rare and the punctuation might as easily be "..." or "-" between phrases, meaning is usually not affected by punctuation, and the caption reader does not have to pause to understand.

A missing comma will often make no difference in meaning, so CE may be appropriate, where the comma has been included in the verbatim transcript. Misplaced or missing

apostrophes often change the meaning of words. However, sometimes a missing apostrophe can be understood and become simply an interruption – BE.

Grammar

Spoken audio is often ungrammatical – incorrect grammar in the captions is not scored as an error if it reflects the usage in the verbatim. Captions are not expected to correct the grammar of the spoken word. However, an edit or paraphrase that corrects the grammar of the speech while retaining meaning is scored CE.

Grammatical errors created by the captions may change meaning, or may cause a pause in the viewer's reading flow, so they may cause BEs or other errors. But if the grammatical error is a common usage that does not cause an interruption in reading or a change in meaning, it may be CE.

Meaning and sounds

Some sounds are not meaningful words – e.g., UH, UM – and their omission does not affect meaning, so CE is appropriate if they are in the verbatim transcript.

However, some non-words are meaningful sounds, and their omission from captions is meaningful. LAUGHTER, APPLAUSE, etc. are part of the hearing experience, and should be in the verbatim transcript. Their omission may be OMM or OD depending on context. If other captions supply the meaning of the sounds, however, or the commentator notes their presence, the evaluator may choose to score the omission CE.

When sounds obscure speech, the missing words are not part of the hearing experience, so they will not be in the verbatim transcript, and their absence from the captions is not an error.

Throw-away words and quips

“You know”, “Thanks for your report” or “THANKS, ERIKA” when the weather announcer takes over from the host, and other similar phrases may be included in the verbatim but add no meaning. Omitting them is CE.

Quips and banter may be essential to the show experience, however. Comments that are very light in nature may be meaningful.

Corrections

Correction of mistakes

Correction of a captioning mistake, if it is accurate, will not be an error in itself, but a CE.

Wrong nouns corrected in an on-screen graphic

This is a BE, worth -0.25. The caption is wrong and causes a reading interruption, but the viewer can see that and, with a moment's thought, still understand it.

Verbatim info is in a graphic but not captions

This is a CE. The captions don't include it (a sports score, for example, or a news reader reading a quotation) but the caption viewer experiences it. No reading interruption is caused and the meaning is conveyed.

Identifying people

When are speaker IDs required in addition to chevrons?

- Whenever it's hard to identify a speaker with their captions, speaker IDs are needed.
- Whenever a speaker changes, chevrons (>>) are needed. If they are missing, some kind of error is indicated.

Typically, when there are only two speakers, only one ID is needed for each speaker, when they first speak, after which chevrons will suffice to identify them. Or, if the speaker is identified in the captions, an ID is not needed when they speak, though chevrons are.

But multiple speakers, off-screen speakers, rapid interchange with lagging captions can all make it difficult to know who uttered what caption, so speaker IDs with the chevrons may be required.

The nature of an ID omission can vary like any other error. And, as elsewhere, context and meaning are important. Since there are a number of possibilities here, a decision tree approach can be helpful. Assuming that chevrons and/or speaker ID are missing from the captions, causing identification issues, the evaluator asks:

- Question 1. Does the video, with lag time considered, make the speaker ID clear?
- If "yes" to Question 1, BE.
- If "no" to Question 1, Question 2. Is the result to misidentify the speaker?
- If "yes" to Question 2, Question 3. Does the misidentified speaker appear to say something that, in program context, they don't agree with?
- If "yes" to Question 3, FIE.
- If "no" to Question 3, OD.
- If "no" to Question 2, and if the speaker ID is simply unclear, but otherwise the meaning is communicated, OD.
- If "no" to Question 2, and if the loss of speaker ID means the captions lose the main meaning, OMM.

Misidentifying a player in play-by-play

This is a BE when the viewer can figure it out easily from the visuals. But misidentifying a player or their actions can be an FIE, if the visuals do not correct it clearly.

Misspelled names

A misspelled name can lead to different scores.

- If the misspelling makes the idea unit meaningless, OD or OMM are scored.
- If the correct name can be understood from the caption – e.g., “Deniss” for “Dennis” – it’s a BE.
- If the meaning of the idea unit is fully communicated, but a name can’t be understood – “DDNnn” for “Dennis” – it’s an NE.
- If the name is known to be someone else’s name, or a comprehensible word, it might be an FIE, if the result is a clear misstatement.
- American spellings are normally BEs, (e.g., “honor” for “honour”), but if it’s a US name or proper noun, the US spelling is acceptable (e.g., The Marine Honor Guard”).

The name of a famous individual was edited out, but their title remains

If part of a name or title is omitted, but it is in nearby captions or an onscreen graphic, it is a CE. Words have been omitted, but the meaning is intact. Without such supplementary sources, the omission would be OD. If the omitted name/title is essential to the main point, it would be OMM.

In some shows the captioner may omit the last name of reporters or regular guests, even though the last names are used in the audio. These omissions are OD, unless the last name is in nearby captions or visuals, since NER does not consider viewers’ possible background knowledge.

Preparation of transcripts

The preparation of the transcripts is the key to scoring errors and must be done carefully.

- NER requires that ten minutes of live content be transcribed and scored. It need not be continuous if it bridges over commercials and other pre-captioned material; such material is not scored or included in the transcripts.
- All of the audible words should be correct in the verbatim transcript. Where a word is inaudible, i.e., it would not be part of the hearing experience, so [inaudible] or a similar phrase can be used to signal the evaluator that these omissions are not scored.
- Chevrons, speaker IDs and bracketed notes (e.g., [applause] and [music]) should be present in the verbatim transcript, as needed.

- Punctuation must be added, since spoken audio carries no punctuation. In general, the captioner's punctuation can be kept in the verbatim unless there is a reason to add or alter it because the captioner's punctuation choice has caused a difference in meaning that might cause OD, OMM, or FIE. Missing or incorrect punctuation that might cause a reading interruption should also be inserted.
- The verbatim transcript should not attempt to revise ungrammatical audio to make it correct written English via punctuation.
- It is often difficult to know what correct grammar would require, so it may be best not to add commas to the verbatim transcript unless meaning requires them. For example, there are the rare classic examples where missing commas can cause an FIE: "He eats shoots and leaves." or "Let's eat, Grandma."
- Quotation marks should be in the verbatim if they are needed for the reader to understand the correct meaning without interruption.
- Musical lyrics should be in the verbatim transcript if they are clearly audible. However, if they are masked by dialogue, too fast to be understood, or just unclear, they may be omitted in favour of musical symbols or the note [music].
 - Note that a paraphrase or description of the music lyrics that captures their meaning is usually CE, unless, in context (e.g., national anthems) the exact words are necessary.
- Off-camera speech should be included in the transcript with some form of source ID if it can be clearly heard.
- The verbatim transcript need not include meaningless utterances such as, "Uh" or "Um". These are not words, and needn't be included. On the other hand, false starts to a sentence like, "I – I said" or meaningless interjections like "you know" and pro forma words, like "Thanks" should be included though their omission from captions will probably be scored CE.
- Usage of hyphens varies; if needed for meaning they are an error and should be in the verbatim transcript.

Care is also needed with the caption transcript. Even if text is supplied from a broadcast logger, proof-reading is necessary. NER is about the viewer experience and evaluations must be based on what was seen by the viewer.

The NER score calculation

The NER score is calculated as follows.

$$\text{NER SCORE} = (\text{Words} - \text{NER Deductions}) / \text{Words}$$

Where:

1. “Words” equals the total number of captioned words in the segment evaluated.
 - a. For these purposes, “words” includes chevron groups and punctuation marks. Words in brackets like [light applause and laughter] count as a single word¹³.
2. “NER Deductions” equals the total of all error deductions assessed by the evaluator in the segment.

¹³ This definition was arrived at after discussion with Dr. Pablo Romero-Fresco and is identical to the definition used in all NER practice.